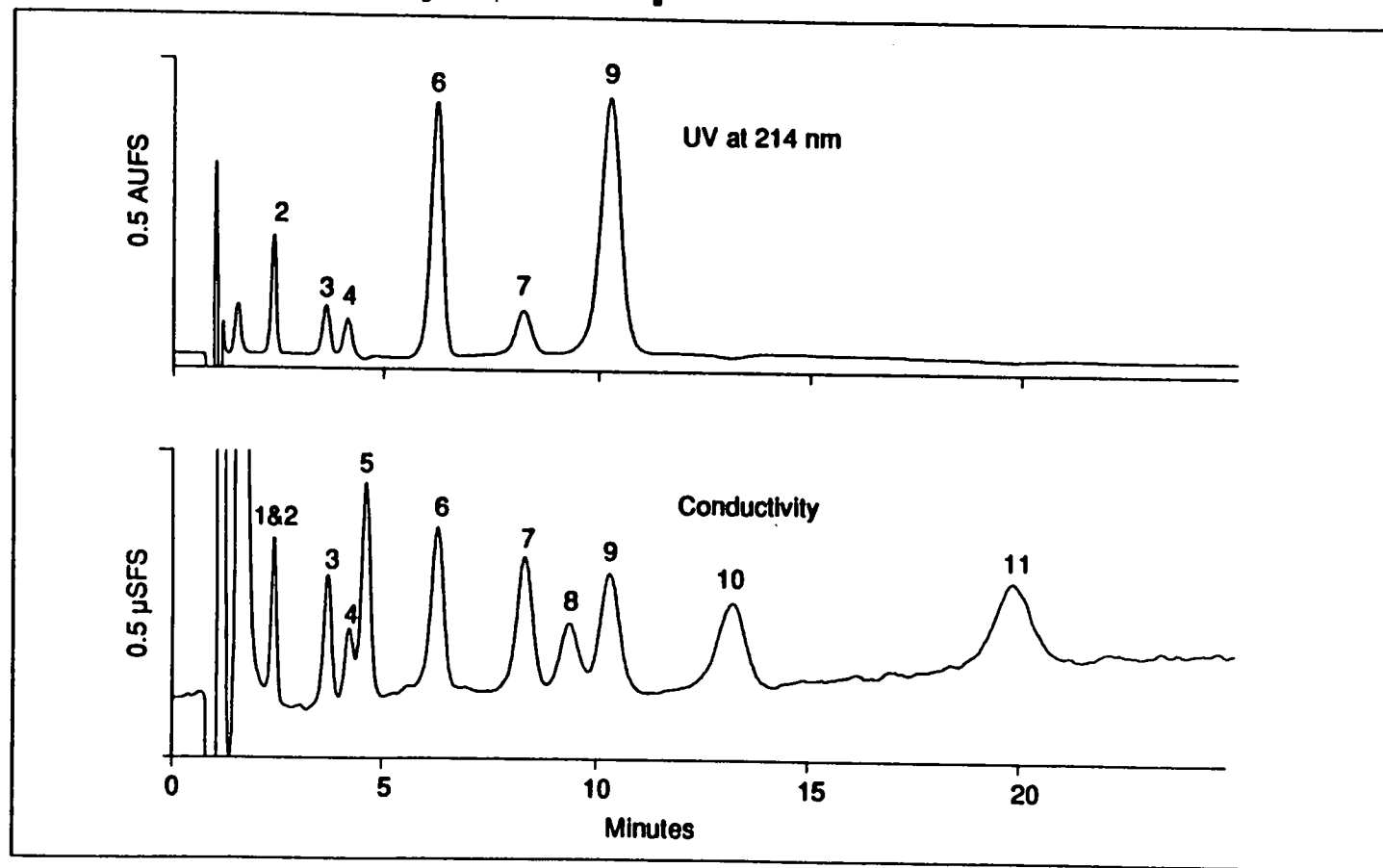


## The Use of Waters IC Pak Anion HC for Anion and Oxyhalide Separations.



### Conditions:

Column: Waters IC Pak™  
Anion HC (4.6 x 150 mm)  
Eluent: Sodium  
Borate/Gluconate  
Flow Rate: 2 ml/min.  
Detection: Conductivity using  
Waters 431 Conductivity Detector  
Back Cond: 274 μS  
Injection Volume: 100 μl

### Peak ID's

1. Fluoride	= 1 ppm
2. Iodate	= 4 ppm
3. Chlorite	= 4 ppm
4. Bromate	= 4 ppm
5. Chloride	= 1 ppm
6. Nitrite	= 2 ppm
7. Bromide	= 4 ppm
8. Chlorate	= 4 ppm
9. Nitrate	= 4 ppm
10. Phosphate	= 6 ppm
11. Sulfate	= 4 ppm

The oxyhalides chlorite ( $\text{ClO}_2$ ), bromate ( $\text{BrO}_3$ ), iodate ( $\text{IO}_3$ ) are produced from the ozonolysis (oxidation) of chloride, bromide, and iodide in drinking water. These oxyhalides are currently being reviewed by the US EPA as primary contaminants; nitrate is currently a primary contaminant regulated by the US EPA. This method also will give data on chloride, phosphate, and sulfate which are considered secondary contaminants. They are of interest to the user but not regulated by EPA.

### **Objective:**

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To demonstrate the utility of the IC Pak Anion HC column for the analysis of anions and oxyhalides using UV/Vis and Conductivity Detection in series.

### **Details:**

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Use UV at 214 nm for the quantitation of iodate, chlorite, bromate, nitrite, bromide, and nitrate; use conductivity for chloride, phosphate, and sulfate. Fluoride, iodate, and the organic acids formate and acetate coelute under these conditions; although fluoride is not UV active the organic acids are. Usually iodate is not present at detectable levels. For fluoride, formate, and acetate analysis use ion exclusion. Iodide will elute after sulfate under these conditions.

### **System:**

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Waters polymeric ACTION Analyzer with Rheodyne fixed loop injector with 486 UV/Visible Detector and 431 Conductivity Detector. Data acquired on Waters 860.

### **References:**

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Waters Innovative Method Book; Method A-119.